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EXECUTIVE SUMMARY

INTRODUCTION

In August 1999, the Saskatchewan Aviation Sector Partnership Steering Committee was formed with assistance from Saskatchewan Post Secondary Education and Skills Training (PSEST). Trimension Training & Consulting Group was contracted to research and help identify the human resource and training needs of the industry.

This report presents the results of this research. A report profiling the industry and its two main occupations, pilots and Aircraft Maintenance Engineers (AMEs), can be obtained from the Saskatchewan Aviation Council or PSEST.

METHODOLOGY

Two surveys were conducted to assess the human resource and training needs of the industry. The first survey was conducted with a cross section of 20 aviation businesses. Respondents were drawn from lists supplied by the *Saskatchewan Aviation Council* and *Transport Canada*. The second survey was conducted with 12 Approved Maintenance Organizations (AMOs). The AME sub-committee worked with Trimension Group to develop the survey instrument. *Transport Canada* supplied the lists. The AME sub-committee identified key businesses to ensure a high proportion of the AME workforce was captured.

NorSask Consumer Interviewing Services, a professional interviewing service in Saskatoon, was subcontracted to conduct both sets of surveys. The first survey was conducted between September 28 and October 7, 1999. The second survey was conducted November 1999. Trimension Group analyzed the data using *SPSS for Windows*, a statistical software package.

KEY FINDINGS[1]

Company Information

- Business areas included in the surveys were charter and scheduled service, seasonal, medivac, fire fighting, arial applicators, flight training units and Approved Maintenance Organizations
- 90% of those surveyed are fixed wing operations. The remaining 10% are rotary.
- 16 (80%) are corporations; 3 (15%) are government organizations; 1 (5%) is a flying club.
- 7 (35%) of the sample employ fewer than 10 people. 13 (65%) employ more than 10 people.
- The first survey captured 818 employees. 49 people are employed with small companies (less than 10 employees). 769 are employed with large companies (10 or more employees).
- On average companies generated 86% of their revenue in Saskatchewan. 9 companies (45%) generated on average 22% of their revenues out of the province and 5 companies (25%) generated 10% of their revenues in international markets on average.
- Companies surveyed owned a total of 216 aircraft.

Outsourcing

- Operators typically have avionics and hydraulics maintenance done in the province and send engine and instrument overhauls out of the province.
- AMOs typically conduct a variety of electrical and structural repair and running maintenance and send avionics, hydraulics and engine and instrument overhaul out of the province.
- If there were trained personnel available, companies said they would expand into avionics, all aspects of maintenance, and engine overhaul.

Employment Projections

- The five occupations with the largest number of employees are pilots, AMEs, clerks, and flying instructors. Companies expect growth in the next five years among airline sales agents (250%), flight attendants (167%), pilots (20%), and flying instructors (17%).
- Industry estimates it needs 16 AMEs immediately and 45 in the next 1 to 2 years. *
- 75% of AMOS surveyed hire from outside of the province, as there is not AME training in Saskatchewan. *

[1] Most of the information in the key findings is from the first survey of 20 companies. Information for the second survey of 12 AMOs is marked by an asterisk.

- 84% agree that people who have been in the province for a number of years would be more likely to stay in Saskatchewan. *

- 92% of AMOS said that Saskatchewan is presently experiencing a shortage of licensed and apprentice AMEs and CAMC certified technicians. *

Employee Profile

- 75% of pilots and flying instructors are between the ages of 25 and 44. 69% of the total provincial employed labour force is between 25 and 54 years old. 13% of pilots are over 45, compared to the provincial average of 15%.

- 80% of AMEs are between 25 and 44 years old.

- Representation of Aboriginal peoples among pilots, flying instructors and AMEs is 3% in each category, slightly under the province average of 4%.

- 6% of pilots and 1% of AMEs are women. 44% of the provincial employed labour force are women.

- Less than 1% of pilots and 1.5% of AMEs are people with disabilities. 5% of the provincial employed labour force are people with disabilities.

- Entry level pilots and AMEs can expect to earn around $26,000 to $26,500. An experienced pilot or flying instructor can expect to earn about $47,400 and an experienced AME's average salary is about $48,300.

Recruitment

- The cost of training and a good work ethic are the two biggest barriers people face in getting a job as a pilot or AME.

- The shortage of trained and experienced pilots, flying instructors and AMEs are the biggest problems employers' face when recruiting.

- The average turnover rate for pilots/flying instructors was 17%. For AMEs it was 7%.

- Pilots, flying instructors and AMEs leave their jobs to move to a bigger centre or a more desirable location. They found the job too stressful and the industry too difficult. Pilots left to fly for larger carriers.

Skill Requirements and Training

- Typically companies are looking for a good work ethic, common sense, people and communication skills as well as some level of aviation experience in an entry-level pilot.

- There are a variety of skills employers said entry-level pilots are lacking, including math, communication, business skills and aviation experience.

- While employers are looking for some level of knowledge and experience among entry-level AMEs, they also require problem solving and learning skills and a good attitude and work ethic.

- Respondents say that entry-level AMEs typically lack industry knowledge and experience, problem solving skills, and the ability to apply mechanical knowledge.

- Respondents indicated that a combination of both external and in-house training was the best method to provide initial and recurrent training to pilots and AMEs.

- Employers have difficulty meeting their training objectives because of difficulties in scheduling training, lack of time, distance to training institutions, and cost.

Industry Trends

- 25% of companies (5) indicated they expect their formal education and training requirements for pilots to change over the next five years. The main reasons are changes in regulations and standards set by Transport Canada and technology.

- Companies are expecting a consolidation of aviation technicians to emerge as a new occupation and more specialized aviation technician jobs to emerge.

- GPS, communication and computer technology will impact aviation over the next 5 year. The biggest impact technology will have is in training.

Training Options – Awareness and Assessment

- In both surveys and in participation in the sector partnership, the Saskatchewan aviation industry has indicated its willingness to contribute resources to new training programs for pilots and AMEs.

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1.0 Introduction

In August 1999, the Saskatchewan Aviation Sector Partnership Steering Committee was formed with assistance from Saskatchewan Post Secondary Education and Skills Training (PSEST). Trimension Training & Consulting Group was contracted to research and identify the human resource and training needs of the industry.

This report presents the results of this research. A report profiling the industry and its two main occupations, pilots and Aircraft Maintenance Engineers (AMEs), can be obtained from the Saskatchewan Aviation Council or PSEST.

2.0 Methodology

Two surveys were conducted to assess the human resource and training needs of the industry.

The first survey was conducted with a cross section of 20 aviation businesses. The Steering Committee, working with Trimension Group, developed the survey instrument. Respondents were drawn from lists supplied by the *Saskatchewan Aviation Council* and *Transport Canada*. Interviewers were instructed to speak to the general manager/owner or, where possible, the human resource or personnel manager.

In order to understand in more detail the issues surrounding Aircraft Maintenance Engineer (AME) human resources and training, a second survey with 12 Approved Maintenance Organizations (AMOs) was conducted. The AME sub-committee worked with Trimension Group to develop the survey instrument. *Transport Canada* supplied the lists. The AME sub-committee identified key businesses to ensure a high proportion of the AME workforce was captured.

NorSask Consumer Interviewing Services, a professional interviewing service in Saskatoon, was subcontracted to conduct both sets of surveys. The first survey was conducted between September 28 and October 7, 1999. The second survey was conducted November 1999. Trimension Group analyzed the data using *SPSS for Windows*, a statistical software package.

3.0 Human Resource and Training Needs Assessment

In order to gain a broad understanding of the human resource and training needs in the Saskatchewan Aviation sector, companies were asked a series of questions on these topic areas:

- General company information
- Employment projections
- Employee profile
- Recruitment and retention
- Skill requirements and training
- Training in Saskatchewan

The following is the detailed report and analysis of the survey results.

3.1 COMPANY INFORMATION

Of the 20 companies surveyed, the following table outlines the breakdown of their main areas of business. Because respondents were asked to check as many as applicable, the total number of business areas are greater than the sample size. Three of these companies were strictly AMOs. One was a flight operator and AMO. The remaining 17 were air operators.

Main Business Area	Number	% of Sample
Charter	7	35
Scheduled	1	5
Charter/ scheduled	2	10
Seasonal	0	0
Medivac	2	10
Fire fighter	4	20
Arial applicator	2	10
FTU	3	15
AMO (Only)	4	20

90%, or 18, of those surveyed were fixed wing operations. The remaining 2 were rotary.

16 (80%) are corporations; 3 (15%) are government organizations; 1 (5%) is a flying club.

7 (35%) of the sample employ fewer than 10 people. 13 (65%) employ more than 10 people.

In total the 20 companies employ 818 people. 49 people are employed with small companies (less than 10 employees). 769 are employed with large companies (10 or more employees).

On average companies generated 86% of their revenue in Saskatchewan. 9 companies (45%) generated on average 22% of their revenues out of the province and 5 companies (25%) generated 10% of their revenues in international markets on average.

Companies surveyed owned a total of 216 aircraft. These include the following;

- Cessna 172 (11)
- Cessna 185 (8)
- De Havilland Beaver – (7)
- De Havilland Twin/Single Otter - (5)
- Beachcraft Baron (5)
- Bell 206 - (4)
- Beach Craft 99 (4)
- Cessna 182 (4)
- Piper Navajo (4)
- Piper Chieftain (4)
- Piper Aztec (3)
- Jet Stream 31- (2)
- Bell 205
- Bell 204
- Bell Long Ranges
- A Star
- Mitsubishi MU2
- Hughes 500
- Piper Twin Camanche
- Dromatar PZLM18A
- Cessna 188 AG Wagons
- Piper Pawnee
- MA18 Dromadier
- Canadair CL215
- Grummond Trackers
- Bird Dogs – 3 barons, 3 aerostarts, 1 chieftain
- Jets British Aerospace 115
- Hauler 748
- Citation 500
- Citation 550
- Cessna 401
- Cessna 402
- Cessna 414

3.1.1 Maintenance, In Province & Out of Province

As the following table shows, operators typically have avionics and hydraulics maintenance done in the province and send engine and instrument overhauls out of the province.

Table 1 Operators Maintenance, In Province & Out of Province

In Province			Out of Province		
Maintenance work	**# of Respondents**	**% or Respondents**	**Maintenance work**	**# of Respondents**	**% or Respondents**
Avionics	14	70%	Avionics	5	25%
Hydraulics	10	50%	Hydraulics	5	25%
Engine overhaul	0	0%	Engine overhaul	14	70%
Instrument overhaul	3	15%	Instrument overhaul	10	50%
Major airframe	1	5%	Propeller	2	10%
Running maintenance	2	10%	Other (components, oil coolers, heavy maintenance, landing gear, certification for aviation)	5	25%

As the table below demonstrates, AMOs typically conduct a variety of electrical and structural repair and running maintenance and send avionics, hydraulics and engine and instrument overhaul out of the province.

Table 2 AMOs Maintenance Done In Province & Out of Province

In Province			Out of Province		
Maintenance work	**# of Respondents**	**% or Respondents**	**Maintenance work**	**# of Respondents**	**% or Respondents**
Avionics	2	10%	Avionics	7	35%
Hydraulics	4	20%	Hydraulics	6	30%
Engine overhaul	2	10%	Engine overhaul	6	30%
Instrument overhaul	0	0%	Instrument overhaul	6	30%
Airframe inspection	2	10%	Other (heavy maintenance, landing gear, prop)	3	15%
Other (prop balancing, rebuild electrical, servicing, structural repair, running maintenance)	6	30%			

If there were trained personnel available, companies said they would expand into avionics, all aspects of maintenance, and engine overhaul.

3.2 EMPLOYMENT PROJECTIONS

Companies were asked to indicate which of the following occupations they employ, including full-time and part-time jobs. They were also asked to estimate how many people they expect to employ in each occupation 5 years from now. Please note that due to the small sample size and the number of respondents able to complete all the questions, the data should be interpreted with caution.

The five occupations with the largest number of employees are pilots, AMEs, clerks, and flying instructors. As shown in the following table, companies expect growth in the next five years among airline sales agents (250%), flight attendants (167%), pilots (20%), and flying instructors (17%).

Table 3 Employment Projections by Occupation

Occupations	Currently Employed	Expect to Employ in Five Years	# Needed in 5 Years	%Change
Flight Operations Manager	15.5 (n=-13)	15.5 (n=13)	0	0%
Base Manager	25 (n=10)	26 (n=9)	1	+4%
Pilots	249 (n=15)	299 (n=13)	50	+20%
Flying instructors	86.5 (n=5)	101.5 (n=5)	15	+17%
AMEs, apprentice AMEs, and other licensed or unlicensed technicians	107 (n=12)	217 (n=12)	110	+103%
Flight Attendants	6 (n=1)	16 (n=3)	10	+167%
Airline Sales Agents	2 (n=2)	7 (n=2)	5	+250%
Ramp Attendants/ Fuelers	76.5 (n=10)	68 (n=9)	-8.5	-11%
Dispatchers	21.2 (n=7)	26 (n=8)	4.8	+23%
Customer Service Agents	58 (n=3)	43 (n=2)	-15	-26%
Administrative & Accounting Related Clerks i.e.) records	88 (n=14)	88 (n=13)	0	0%
Grounds Crew	1 (n=1)	4 (n=1)	3	+300%
Ground School Instructors	11 (n=1)	11 (n=1)	0	0%
Director of Marketing	0.5 (n=1)	1 (n=1)	0.5	+100%
Stores Dept	5 (n=2)	5 (n=2)	0	0%

3.3 EMPLOYEE PROFILE

3.3.1 Age Profile

The largest age category among pilots and AMEs in Saskatchewan is 25 – 44 years. 74% of the pilots and 80% of the AMEs covered in the survey fell into this age bracket. 13% of pilots and 9% of AMEs are under the age of 24, while 13% of pilots and 12% of AMEs are over the age of 45.

Most pilots and flying instructors are between the ages of 25 and 44. Statistics generated in the survey are roughly equivalent to provincial averages. For example, 69% of the total provincial employed labour force is between 25 and 54 years old, 75% of pilots are between 25 and 44. 13% of pilots are over 45, compared to the provincial average of 15%. Retirement is still a concern in the industry, however, as there is a perception that the pilot population is aging.

Table 4 Age of Pilots, Flying Instructors & AMEs

	Up to 24	25 - 44	Over 45
Number of pilots & flying instructors	51	282	50
% of total pilots & flying instructors	13%	74%	13%

AMEs	22	202	30
% of total AMEs	9%	80%	12%

	15 - 24	25 - 54	Over 55
Employed labour force: provincial averages*	17%	69%	15%

*Statistics Canada, Census 1996. Statistics Canada data is not available for age group 25 – 44. Percentages have been rounded up to the nearest full number.

3.3.2 Salary and Benefits

Companies were asked to provide the average salary or wage for occupations in their company. On average, entry level pilots and flying instructors can expect to earn $26,295. AMEs can expect a similar starting salary; the average entry level salary for companies surveyed is $26,461. An experienced pilot or flying instructor can expect to earn about $47, 400 and an experienced AME's average salary is about $48, 300.

Table 5: Average Salaries, Pilots, Flying Instructors & AMEs

Occupation	Entry Level Ave Annual Salary	Entry level Range	Experienced Ave Annual Salary	Experienced Range
Pilots/ flying instructors	$26,295 (n=16)	$15,000 – 52,000	$47,387 (n=16)	$19,000 - $75,000
AMEs, apprentice AMEs, and other licensed or unlicensed technicians	$26,461 (n=13)	$15,000 – 42,000	$48,321 (n=14)	$33,000 – 60,000

The most common type of benefit offered is medical/dental/disability and life insurance. Nine of the companies surveyed offered these types of benefits, while 7 of the companies offered no benefits at all. Six of the companies surveyed also offered retirement benefits. The following is a list of the types of benefits offered.

- Medical/dental/disability/life insurance (9);
- No benefits (7);
- Retirement benefits (6);
- Housing (3);
- Sick leave (2);
- Uniforms (2);
- Reduced fair/travel (2).

3.3.3 Equity Statistics

Representation of Aboriginal peoples among pilots, flying instructors and AMEs is 3% in each category, slightly under the province average of 4%. Women are severely underrepresented in comparison to their average employment rate in the general economy. 6% of pilots and flying instructors and 1% of AMEs covered in the survey are women. Visible minorities make up 3% of pilots and flying instructors and 1.5% of AMEs compared to their provincial average labour force employment of 3%. Less than 1% of pilots and flying instructors and 5% of AMEs are persons with disabilities. The table below outlines equity statistics of the survey sample.

Table 6 Equity Statistics, Pilots, Flying Instructors and AMEs

	Aboriginals[1]	Women	Visible Minorities[2]	Persons with disabilities
Number of pilots & flying instructors	10 (n=5)	19 (n=8)	11 (n=6)	3 (n=1)
% of total pilots & flying instructors	3%	6%	3%	<1%
Number of AMEs	7 (n=4)	3 (n=1)	4 (n=2)	4 (n=2)
% of total AMEs	3%	1%	1.5%	1.5%
Employed labour force: provincial averages*	4%	44%	3%	5%

*Statistics Canada, Census 1991.

[1] *(Includes Status Indians, Non Status Indians, Métis, and Inuit)*

[2] *(Includes persons who, because of their race or colour, are in a visible minority in Canada. This may include persons of African ancestry, Asian ancestry, Arabic ancestry, etc. This does not include persons of aboriginal ancestry.)*

When asked whether participation of these groups as pilots, flying instructors and AMEs would increase, decrease or stay the same over the next 5 years, most respondents indicated they

expected participation levels to stay the same. The following table indicates what the majority of respondents indicated for each category.

Table 7 Expectations of Future Equity Group Participation

	Aboriginals[1]	Women	Visible Minorities[2]	Persons with disabilities
Pilots & Flying Instructors	Stay the same (n=8) Increase (n=7)	Increase (n=7) Stay the same (n=6)	Stay the same (n=10) Increase (n=4)	Stay the same (n=12)
AMEs	Increase (n=9) Stay the same (n=6)	Increase (n=7) Stay the same (n=7)	Stay the same (n=9) Increase (n=5)	Stay the same (n=10) Increase (n=4)

3.4 RECRUITMENT AND RETENTION

3.4.1 Barriers to Employment

Respondents were asked to rate a series of difficulties potential pilots and AMEs face when trying to find a job in the industry. A rating of 1 means the item is not at all a difficult; a rating of 5 means the item is a major difficulty. As the table below outlines, the respondents identified the cost of training and work ethic as the two biggest barriers people face in getting a job as a pilot or AME.

Table 8 Difficulties Finding a Job in the Aviation Industry

Difficulty Finding a Job in the Aviation Industry	Average Rating	% Rating 4 & 5*
Need proper training (n=20)	3.5	50%
Need aviation experience (n=20)	3.8	65%
Must have a good work ethic/willing to work (n=18)	4.3	89%
There is high competition for jobs (n=19)	3.2	53%
Cost of training for the individual (n=19)	4.5	95%

* % of those answering the question.

Other difficulties entry level pilots and AMEs face are:

Pilots & Flying Instructors

- Industry experience. (3)
- Strung along by schools about number of jobs available and how easy it is to get a job as an entry level pilot.
- Willing to relocate, going where the work is. Willing to work in remote locations. (2)
- Not knowing what is available and what to expect when you are on the job.
- Ability to work with other cultures i.e. Aboriginal cultures.
- Float aircraft is a dying industry and so they are not being trained on float aircraft so it is harder to find pilots with that training.
- Getting paid a wage you can live on and finding a place that will take you with limited experience.
- Financial ability to search for a job. They often have to look across Canada and that is costly.

AMEs

- Hard to achieve an awarding pay level in private industry as opposed to a government position. Difficult to get broad range of experience without a lot of movement of jobs.
- Industry experience.
- For women it is hard because there are not a lot of women. They have to be prepared that they will be working mostly with men. Having to work out in bush camps.
- There is a sense of closed concept with AME's that there is not a need for a lot of them. I can sign a host of non AME's eligibility criteria is set higher than military technicians have. They need to go back and pick up classroom hours.
- Non have to move away from Sask. to get training and experience.
- Apprentice AMES getting experience is not a big problem as it is for pilots.

3.4.2 Difficulties Recruiting

Respondents were asked to rate a series of difficulties employers face in trying to recruit pilots, flying instructors and AMEs. A rating of 1 means the item is not at all a difficult; a rating of 5 means the item is a major difficulty. As the table below outlines, the shortage of trained and experienced pilots, flying instructors and AMEs is the biggest problem employers face when recruiting.

Table 9 Difficulties Finding Workers for the Aviation Industry

Difficulty Finding Workers for Aviation Industry	Average Rating	% Rating 4 & 5*
It is hard to attract employees to remote locations (n=19)	3.9	68%
It is difficult to offer competitive wages (n=19)	3.5	53%
There is a shortage of trained labour (n=19)	4.1	74%
Aviation is unknown as a career choice (n=19)	3.7	63%
There is a shortage of experienced labour (n=19)	4.5	95%

* % of those answering the question.

Respondents identified the following as other barriers to recruiting pilots and flying instructors.

- Access to educational facilities. Sask. has none for maintenance personnel. We can't readily recruit from these schools because they are not here.
- The company has to install a training program to bring people up in the ranks.
- Getting people willing to get up before the sunrise and go to bed after sunset. Sit around and do paperwork and accept that it is seasonal work. It does not allow for much family life.
- Hard to find people with a good work ethic.
- Pay
- Mostly finding the people with required hours and experience

Employers identified the following as difficulties in recruiting AMEs.

- Some of the bureaucracy incurred in trying to get further licensing which would enhance employability and skill levels.
- Competition in a very limited industry.
- Pay

3.4.3 Turnover

As the table below demonstrates, pilots and AMEs typically voluntarily leave their jobs. A relatively small proportion are terminated, however, pilots in this survey were more likely to be terminated than AMEs. There were even fewer lay offs, again however, pilots were subject to more lay offs in this survey sample.

Table 10 Turnover

Reason	Pilots/flying instructors		AMEs	
	#	% of Total	#	% of Total
Left voluntarily	34 (n=12)	59%	12 (n=6)	71%
Were terminated	15 (n=6)	26%	1 (n=1)	6%
Were laid off	8 (n=4)	14%	0 (n=0)	0%
Retired	1 (n=1)	2%	4 (n=2)	24%
Other (specify)	0 (n=0)	0%	0 (n=0)	0%
Total	**58**	**101%***	**17**	**101%**
% of Total Pilot/AME Employed in Survey	**17%**		**7%**	

*Percentages have been rounded up to nearest number.

Respondents were evenly split on whether or not turnover was a problem in their organization. Half of those who responded to this question said turnover was not a problem, half said it was a problem.

Some companies commented that a certain level of turnover is to be expected and can even be good for the organization. The line between healthy turnover and problem turnover can be thin, and can change from year to year, as some of the comments below indicate.

> *"It was not as much problem this year as last. It is a problem from a cost point of view, but it gives you an opportunities to bring new people in."*
>
> *"I enjoy having new blood in the organization, but there are times when it is a large problem. It can cause a headache, especially when the airlines are in a recruitment stage and are seeking out our experienced instructors."*
>
> *"It is always a threat, but at this time we have been maintaining a 5-10% turnover which is not that bad."*
>
> *"It can be a problem. A year ago it was. Today it is not. It is healthy to have some turnover to allow some upward mobility. But too much and you lose your experience base."*

Companies that did not feel turnover was a problem indicated that a good work environment and good pay were the main reasons. The following are some of their comments.

"The work place environment is good. We treat our people well. Salary is the other aspect."

"Not yet. We offer pension, medical, and dental. It's a career company."

"They are treated well. The boss is just one of the guys. We have the best equipment in the province and an excellent work environment."

Those who saw turnover as a problem indicated that recruitment by larger companies was a chief cause and that it is an industry problem rather than company specific. Company location in remote areas is also an issue.

"It has not been a problem to date, but with the large companies like Bombardier coming in, I do feel it will become one."

"It is more of an industry problem. A lot of pilots will work the summer and then contract out across the country. It is partly the company's fault for laying them off but you can not afford to keep them on."

"They have so many job opportunities once they have some experience with a company like ours. They move on to larger urban areas that are more attractive. If we could train our own Northern people they would be more likely to stay on."

"It is a concern because it is hard to recruit new people."

"We are in a remote area and a lot of them are airline bound."

"Flying instructors build time and go off to other flying jobs."

"Pilots. They go on to companies with turbine equipment or fly charter."

Contrary to most of the opinions, one individual said that turnover is not as much of a problem because large carriers are not hiring as much as they used to.

"The industry has slowed down. The major players are not hiring like they use to."

3.4.4 Reasons for Leaving Employment

The most common reason pilots, flying instructors and AMEs gave when they left their job was that they were leaving for better opportunities elsewhere, in the case of pilots that mean flying for a larger carrier. Pilots, flying instructors and AMEs also said they were moving to a bigger centre or were dissatisfied with the location, they found the job too stressful and the industry too difficult. The following is a list of the most common reasons people gave for leaving their jobs.

- Better opportunities for advancement/ for a tier 1 carrier (15)
- Move to a bigger centre, dissatisfied with location (5)
- Job is too stressful (3)
- Better wages elsewhere (2)

- Retirement (2)
- Change in careers (2)

3.5 SKILL REQUIREMENTS AND TRAINING

3.5.1 Skill Requirements and Deficiencies

Typically companies are looking for a good work ethic, common sense, people and communication skills as well as some level of aviation experience in an entry-level pilot. There are a variety of skills employers said entry-level pilots are lacking, including math, communication, business skills and aviation experience. Some of these skills, such as communications and customer service can be learned with experience. Below is a list of the responses.

Table 11 Pilots: Skill Requirements & Deficiencies

Industry Specific Skills Needed	Skills Lacking
Work ethic. General comprehension of maintenance procedure.	Math and communication skills
Float plane experience, good work ethic, and experience in the north. Multi crew experience.	
Independent worker. Farm background. Communication skills.	
300 hours pilot command time. Four multi engine. IFR of 1000 hours. In house training.	They need experience in picking up passengers in remote locations.
People skills, communications skills, outgoing personality and some writing skills.	
Competent at all aspects of aerial spraying.	
Multi engine rating. Instrument rating float endorsement.	Float rating, multi engine instruments rating.
Certification from SK AG & Food. Special needs for crop protection products. Monsanto & BASF training. CPR training.	Hard to fine qualified people with an ag background.
People skills, good work ethic. Proper attitude toward safety.	People skills. Work ethic
Common sense. Bush sense approach to flying. Minimum of 4500 hours total time. We like to see twin engine time and float operations.	Airline mentality rather than just good work ethic. Spatial recognition, map reading, communication ability.
1000 hours with 500 PIC.	
Good work ethic. Meets our standards	Good work ethic. Basic technical which can be developed through experience.
Officer training course. Bachelors degree. Air crew selection process.	Business training.
Instrument rating and 300 hours and going up to 1500 hours in near future.	Lacking in some cases a business sense of what the job is. More to it than driving the plane.
Customer relations. Address customer concerns. Competency on competition	Customer relations.
Communication, customer service, ability to work well with others.	Lacking part of these skills, but they can be gained through experience.

While employers are looking for some level of knowledge and experience among entry-level AMEs, they also require problem solving and learning skills and a good attitude and work ethic. Respondents say that entry-level AMEs typically lack industry knowledge and experience, and skills such as problem solving and the ability to apply mechanical knowledge. Communication skills and the ability to work with others may be skills that are lacking, but they are also ones that can be learned on the job.

Table 12 AMEs, Skill Requirements and Deficiencies

Industry Specific Skill Needed	Skills Lacking
Effective problem solving, communication skills, and teamwork skills. Maturity to appreciate the seriousness of job.	Paperwork skills. Aviation experience, including ground schools and at least 10 hrs of flight time.
Independent workers, problem solvers, and quick learners.	Able to think through a problem and solve it.
Experience with our type of aircraft.	Experience - we train them for 1 year before they are really productive.
Personality, character, and mechanical aptitude.	Experience and industry knowledge. Ability to apply mechanical knowledge without supervision.
People skills, good work ethic, and proper attitude toward safety.	People skills. Work ethic.
M1 & M2 license experience on turbines. Sheet metal work. Avionics. Certifying authority. Welding. Non destructive testing. Computer skills. Trouble shooting.	Ability to trace winning diagrams and trouble shoot rather than just change components.
Have some experience on my types of aircraft.	
Basic training and 4 years of learning experience. Various specialty courses based on plane or jet.	Dimension of individual competitiveness for livelihood. Computer skills.
Communications, work well with others and work well with pilots.	These skills are lacking in all or in part but can be gained through experience.
Hire people with experience.	None
Better understanding of how they affect the aircraft and scheduling aircraft. Flexibility with work schedule.	Lack of understanding that they may have to work outside and at air shows.

3.5.2 Training Delivery

Respondents overwhelmingly indicated that a combination of both external and in-house training was the best method to provide initial and recurrent training to pilots and AMEs.

Table 13Preferred Delivery Method

Pilots/Flying Instructors			AMEs		
	# of responses	% of responses		# of responses	% of responses
External training	1	6%	External training	5	30%
In-house training	5	30%	In-house training	0	0%
Combination of both	11	65%	Combination of both	12	71%
Totals (n)	**17**	**101%***		**17**	**101%***

* Percentage rounded up to nearest number.

3.5.3 Barriers to Training

The most common reasons employers have difficulty in meeting their training objectives is the difficulties in scheduling training, lack of time, distance to training institutions, and cost. Respondents also indicated that the cost of sending people to Winnipeg, lack of local courses and the availability of Transport Canada personnel were difficulties. The following is a list of all the barriers respondents' face in delivering training.

- Logistics of scheduling training (7)
- Lack of time (6)
- Distance to training institutions (6)
- Cost of tuition and books (6)
- Lack of resources (4)
- Lack of training in the province (4)
- Availability/capability of in-house expertise (2)
- No local external facility for training. (2)
- Cost to employee of living expenses while not working (1)
- Cost of sending people to Winnipeg (1)
- Cost of exams (1)
- More options for times of training (1)
- Courses not applicable to industry. (1)
- Local availability of courses (1)
- Availability of Transport Canada personnel (1)
- Lack of training personnel (1)
- Exchange rates on costs of training (US $) (1)
- Cost of travel, lodging and meals (1)
- Available technical support (1)
- Cost to send far distances and housing while in training. (1)
- Training standards are just being set. (1)
- Standards being set by people that know. (1)
- Knowledgeable in Aerial applications (1)
- Airport facilities – No ILS's in North (1)
- Weather conditions.(1)
- Transport Canada – schedule training they have to go to Saskatoon to do the rides and all pilots have to go. (1)

3.6 INDUSTRY TRENDS

3.6.1 Future Education & Training Levels

25% of companies (5) indicated they expect their formal education and training requirements for pilots to change over the next five years. The main reason for changing education and training levels is the changes in regulations and standards set by Transport Canada. As well, technology and computers are impacting the level of training an individual will need to become a pilot

55% of companies (11) said they do not expect any changes in the formal education and training they will require of future pilots. Generally, respondents felt that the job has not changed that much over the last 25 to 40 years and will not change that much in the future. Current level of training and education are satisfactory. Companies also indicated that they hire experienced pilots or train entry level pilots to the level they need them at.

In terms of the education and training levels of AMEs, 30% of companies (6) indicated they expect their requirements to change over the next five years. Companies said changing regulations and training through Transport Canada, changes in equipment, aircraft and computers will impact the levels of education and training sought.

50% of companies (10) do not expect the education and training levels of AMEs to change. These companies indicated that they are satisfied with current levels of training, they typically hire experienced people, and they do not intend to change aircraft. Also, they are not expecting changes in technology or they have recently made changes to training levels.

20% of the companies (4) had no opinion or chose not to answer the question for either pilots and flying instructors or AMEs.

3.6.2 Changing or Emerging Occupations

Respondents are anticipating changes in both AME and pilot occupations. They are expecting a consolidation of aviation technicians to emerge as a new occupation, and more specialized aviation technician jobs to emerge. The following table outlines anticipated changes among these occupations.

Table 14 Emerging & Changing Occupations

Occupation	Emerging # of response	Changing	Cause
AMEs		1	Technical records that have to be kept.
AMEs		1	Where before you were an AME and did all the different jobs whereas now they want people specifically trained in certain areas in upholstery, welding, instruments, avionics. These are all becoming separate positions as it were.
AMEs		1	New licensing with Transport Canada
Avionics		1	Need knowledge in magic glass cockpits.
Aviation technicians	1		Consolidation of technician to provide for all needs with fewer people.
AME's and pilots		1	More electronics, avionics, and non destructive testing flight management systems.
Pilots & AME's		1	Electronics – development of microprocessing technology and cost of keeping up with development.
Pilots		1	Younger people put more demand on time off. Older guys go out May 1st and come back at end of season. Because of that you need one more body on hand.
Pilots		1	More demanding in technical training and more service orientated.

3.6.3 Impact of Technology

Respondents identified GPS, communication and computer technology as technology that will impact aviation over the next 5 year. The biggest impact technology will have is in training. The

workforce will need to stay current with new technology and tools. The other impact is cost; technology may be useful in making a business more efficient, but will come at a cost. The following comments highlights some of the concerns around technology.

> *"GPS. We have had to buy new equipment to service and upload them. It is a service that will grow. There are constantly new bells and whistles and we can't keep pace with the tools to do it, however, with my background I can deal with it"*

> *"Technology will probably be the highest level of change. Individuals who do not have a working knowledge of computers will be hard pressed to do their jobs."*

> *"Technology is the biggest thing affecting aviation. Adapting to it both in training and cost will be our greatest challenge in the next 10 years."*

> *"Technology represents another learning curve. This is where the training is important."*

Some companies said they would not feel the impact of technology, either because they are at the forefront of new technology or it does not pertain to them. The following comments highlight their thoughts.

> *"It will have next to no impact. We are introducing the new wave and will stay current over the next 5 years."*

> *"I can see there are certain things we will have to become more familiar with. A lot of others really won't apply to us at all."*

The most important aspect in coping with technological change will be training. Companies indicating that training to keep up with technological development will help them adapt. Other coping mechanisms are market research to keep abreast of trends and strategic planning to alleviate any large impact. The following comments highlight their thoughts on coping with technological change.

> *"We can take advantage of training programs that are becoming available."*

> *"If it needs more education and training then we would take it."*

> *"The more facilities we have close at hand to make these changes the easier it will be."*

> *"Take strategic steps so it will take several steps to alleviate any large impact."*

> *"Surveying the markets to see what is available."*

3.6.4 Skills Development

Of the 18 who answered the question, the majority of respondents believed that the skill levels of pilots, flying instructors and AMEs would get more specialized or remain the same over the next

five years. Two respondents said they thought these positions would become more generalized over the next 5 years. Two respondents did not know or had no opinion.

Table 15 Skills Trends

	More Specialized	More Generalized	Remain the Same
# of Responses (n=18)	8	2	8
% of Responses (n=18)	44%	11%	44%

Those who said these occupations would become more specialized cited technological advances and niche markets as the primary reasons. The comments below elaborate.

"New complex materials; new and tighter regulations from Transport Canada."

"With advancements I feel that there will be more specialized application methods, spray nozzle advancements and patterns they achieve."

"We are becoming a very specialized niche in the industry. We are becoming the minority side of the industry. Most other companies have gone to the commercial. We are still ski and float a rare breed."

"They are becoming more specialized because of changes in the industry and new technology."

Those who believed these occupations would remain the same generally said that they did not foresee many changes within the company that would require a change in skill level. Their comments are below.

"Equipment and work scope will not change."

"We do not plan to expand to new equipment."

"As long as the operation stays more or less the same as it is now, I don't really foresee any reason for change"

"We feel like we have a fairly high level now and can not foresee any major changes in company structure."

Those who said skills of pilots and AMEs would become more generalized attributed this to technology and the ability to work with a broad range of aircraft. Their comments are below.

"They do not have a broad experience on a broad range of aircraft. They will need this if they want to advance in the industry."

"They will have to develop the info-tech skills to do their jobs. The tools we will be using will be more technically oriented."

3.6.5 Globalization

Generally, respondents said that globalization would impact their business in a variety of ways. From higher costs, to broader markets and access to world suppliers, globalization is affecting the way Saskatchewan airlines do business. On the positive side, NAFTA and the Open Skies agreement has opened up the United States, people from all over the world are coming here to train, and parts can be sourced from all over the world. On the other hand, globalization has increased costs and opened opportunities for Saskatchewan pilots and AMEs to work abroad. Canadian rules and regulations are being compounded by bureaucracy in other countries. The comments below highlight the impacts of globalization.

"I am just in the process of learning more about the Open Skies process so I do not know yet how it will impact us, but I feel there are opportunities and it is not a bad thing."

"NAFTA allowed us to go work in the States."

"From the training aspect, people from Asia may come to Canada to get substantially better training at a lot lower cost."

"Wider accessibility of information and parts sourcing."

"It is made our costs go up with exchange rates. We are seeing more interchange of personnel."

"Raised the price of equipment substantially. Opened a market for pilots and AME's to work around the globe which has created a shortage."

"People apply to this school from all over the world and I can not get them here because I can not identify what the government requires to get through the red tape."

3.6.6 Additional Comments

"There is no avenue for AME's to expense their tools or write them off for tools they need to do the job for a living. There is a real lack in admin aviation people and yet there is an in increasing need for this because of all the paperwork that is required that the AME's are either not capable of doing or just do not want to do. SK Industry could really benefit from becoming a global trainer because of costs in Europe."

"When we do have to send people away for training, it gets very costly because we have to send them such great distances and then we find that they have been filled with a lot of info which although it is good, it is totally irrelevant to our situation."

"Have that come to mind. There is a harmonization of regulations with Europe and elsewhere which has greatly affected us and will continue over the next 10 years. We were going to have ownership turnover in some of these smaller firms because of retirements."

"We need to pay pilots more for what they do. Have to weed out pay your dues concept as the pilots have to fly for free to get the experience that they need. They have to earn a living on the entry level. They get paid only for the hours they fly instead of the time at the job."

"The only thing is our business is also in the training business, so some of our students are learning for recreational purposes, so the economy does affect our business."

"The impact of Transport Canada, NAV Canada and PMRA – most aerial applications are small business and it is a problem with the regulations we have to live with, there are fees at the airports we have to pay even though we never use them."

"Extend the formal training to include some practical experience relative to their apprenticeship and this apprenticeship is the way to go to get people trained for the industry. I would like to see is to attract students from the rural and remote areas through career symposium into a credible training center that works with industry to tailor training to produce a professional pilot and AME. That would produce stability in the province."

"For our specific area of the industry, it is easier to take a farmer and train him to be a pilot than to train a pilot to be a farmer."

"All the costs that are being placed on the industry are making it very hard on the industry i.e. user fees, regulatory things, etc."

"The industry does not promote itself enough among high school students so they will see us as a viability alternative for a career. When we are trying to hire First Nations people, it is extremely difficult for these people to obtain the education and educate them that it is a career that they can do. Getting people interested in a career in aviation as soon as possible even before high school."

"The drastic regulations being implemented on us and being crammed down our throats."

"We do have a narrower focus. We are focused on military aviation field. We have a market focus."

"Government control intervention regulation you spend more of your time dealing with these than necessary."

"Aircraft insurance continues to go through the roof and they do not have many claims."

3.7 TRAINING OPTIONS

When asked whether they would be willing to contribute resources to an industry directed commercial pilot and AME training program that would bring students to a knowledge and competency level that would require little more than company indoctrination training, 75% (15 companies) said yes, 5% (1 company) said no, and 20% (4 companies) did not respond.

Table 16 Industry Contribution to Training Program

Contribution	# of Responses	% of Total Respondents
Release time for employees to participate in training programs	14	70%
Transportation (seats/aircraft) to move students to training sites	10	50%
Pre-employment on the job training	12	60%
Accommodation at training sites	10	50%
Training aids i.e.) surplus equipment, manuals. aircraft	12	60%
Classroom facilities	4	20%

3.8 SASKATCHEWAN AVIATION SECTOR PARTNERSHIP

70% of respondents indicated they would like more information about the Saskatchewan Aviation Sector Partnership. Four or 20% were not interested in receiving further information.

3.9 SURVEY OF APPROVED MAINTENANCE ORGANIZATIONS

Twelve approved maintenance organizations were further surveyed in order to examine more closely the need to have an AME training course offered in Saskatchewan and, if required, to identify what trade or licensing areas are needed. The list was provided by Transport Canada. Those 12 AMOs represent the largest AME/apprentice employers in the province, and employ 72 licensed AMEs and 35 apprentice AMEs for a total of 107 licensed and apprentice AMEs. Of the 35 apprentice AMEs, 27 (77%) were trained at a Transport Canada approved training course. There are currently 34 AMOs in Saskatchewan .

3.9.1 Canadian Aircraft Maintenance Council

The aircraft industry recognizes a number of trade areas. The Canadian Aircraft Maintenance Council (CAMC), for example, has identified approximately 13 different trade areas. Seven of the 12 respondents (58%) said they would hire a CAMC certified technician in **lieu** of an AME. Eight of the respondents (67%) would hire a CAMC certified technician in **addition** to an AME. Eight companies would hire a CAMC certified technician either in lieu of and/or in addition to.

3.9.2 Shortage of ATO Trained Personnel

In order to sustain current business levels AMOs in the survey need 111 individuals trained at an approved training organization. This is 4 more than are currently on staff. Respondents said there were shortfalls in the following areas:

- Sheet metal/structural repair
- Licensed AMEs -M1 and M2 Categories
- Upholstery workers
- Purchasing aircraft parts
- In all areas. Trained personnel are scarce.
- Electronics/avionics
- Component overhaul personnel
- Welding

3.9.3 Immediate and Future Hiring Requirements

As the tables below show, survey respondents will need a total of 45 licensed and apprentice AMEs within the next 1 to 2 years. Fewer companies were certain how many they would need in 3 to 4 years, but those who responded said they would need a total of 49 licensed and apprentice AMEs. There is an immediate need for 16 licensed and apprentice AMEs.

Table 17 Hiring requirements for licensed AMEs

Hiring requirements: Licensed AMEs		
Immediately	**Within the next 1 – 2 years**	**Within the next 3 - 4 years**
7 (n=5)	23 (n=10)	25 (n=7)

Table 18 Hiring requirements for apprentice AMEs

Hiring requirements: Apprentice AMEs		
Immediately	**Within the next 1 – 2 years**	**Within the next 3 - 4 years**
9 (n=6)	22 (n=10)	24 (n=8)

3.9.4 Business Restriction v. Growth

The majority of respondents (8 or 67%) said that the current shortage of AMEs, apprentice AMEs and technicians was not affecting their **current** business size. In order to grow or expand, AMOs would need trade or licensing areas in the following:

- Licensed AME's – (6)
- Sheet metal/structural repair (4)
- AME's helicopter trainees
- Sheet metal instructors.
- Avionics personnel, instrument technician, engine overhaul technician, propeller overhaul technician, structural technician, painters and upholsters.
- 2 technicians, AME apprentice
- Avionics
- S33 rated – structures sheet metal
- E – Electronics licenses
- Turbine training endorsement
- Component overhaul

If there were enough licensed and apprentice AMEs, 27% (3 of 12) said they would expand their business. On average, they would expand their business by 82%. 67% (8 of 12) said they would not expand their business.

3.9.5 Out Sourcing

Of the 12 Saskatchewan AMOs surveyed, the 10 who responded said they have between $50,000 and $1 million worth of business completed out of province. The following table shows how many companies subcontract work out of province and the approximate value of that work.

Table 19 Value of business completed out of province

Number of companies subcontracting out of province	Value
2	$50,000 – 99,999
1	$100,000 – 199,999
1	$200,000 – 299,999
2	$300,000 – 499,999
4	$500,000 – 1,000,000

Respondents were evenly split (6 yes, 6 no) when asked whether the presence of an approved training organization in the province would draw other companies to the province.

3.9.6 Current Source of Training & Recruitment

75% of respondents said they would hire most or all of their AMEs from outside the province. As several indicated, this is because there is no training in the province. Very few estimated the percentage of out of province AMEs they would be hiring; two of the respondents intend to hire on average 65% of their licensed and apprentice AMEs from outside the province. However, this number belies the number of respondents who said that they would have to hire all or most from outside the province.

Eleven of the twelve (92%) said they would give preference to people trained through an approved training course. One respondent would not give such preference. As well, the majority (10 or 84%) agree that people who have been in the province for a number of years would be more likely to stay in Saskatchewan.

3.9.7 Turnover Patterns

As was shown in the first survey, AMEs typically seem to have a relatively low turnover rate. In order to determine need, it is important to assess the pattern of turnover companies are experiencing. That is, the level of turnover and the reasons why they are leaving. Several companies indicated they have very low turnover; very few AMEs have left their jobs in the last five years. Of those who have left, they pursue a variety of options, including moving out of province, changing professions, moving to a larger company, or moving to a less remote location. The primary reason for turnover seems to result from AMEs moving out of the province. Below are their comments:

- Retirement - 2
- 1 apprentice or 1 engineer/year
- 1 person let go.
- No one has left in 5 years
- Go West
- Move to larger out of province companies.
- Changing professions or for mandatory reasons.
- Other opportunities
- Leave to go to a different job, to progress within the industry, less remote
- Move to other larger organizations that offer more benefits.
- Some move to more desirable locations
- Low turnover, no real pattern. When they do they leave to another AME.
- No engineers have left
- No real turnover – no real pattern
- 20-30% leave the province, 30% movement between companies, 40% are leaving this industry

75% or 9 of the companies replaced all of the AMEs lost to turnover. One company did not replace all AMEs who left the company. Two of the companies did not answer the question.

Typically, companies are losing licensed AMEs, however, they are also losing apprentices. The following is a breakdown of turnover of licensed and apprentice AMEs.

- Licensed AME's - 5
- AME's & Apprentices AME's - 3
- AME apprentice - 2

Of the 107 AMEs and apprentices employed by the surveyed AMOs, these turnovers represent approximately 10% of their workforce.

33% of the companies said that when an AME left their organization, he or she left the industry all together. 42% said the AMEs they lost to turnover did not leave the industry. The remainder (25%) did not answer the question.

42% of the companies said that if their AMEs left, they went to another AMO in the province. 33% (4) said that the AMEs who left did not stay in the province. Again, 25% did not answer.

3.9.8 AME Shortage

The majority of respondents (11 or 92%) said that Saskatchewan is presently experiencing a shortage of licensed and apprentice AMEs and CAMC certified technicians. Six of the respondents (50%) said the shortage is severe, 4 (33%) said it was moderate and 1 (8%) said there was no shortage. One respondent believes the shortage will worsen. Another estimated a shortfall of 150 – 200 technical people. The main cause of the shortage seems to be low apprentice wages.

92% (11) said there will be a shortage in 5 years and 75% predicted a shortage in 10 years.

3.9.9 AME Training

There is support among AMOs for an industry directed AME training program in the province. 83% (10) said they would support a program that would bring students to a knowledge and competency level that would better prepare them for employment in aviation maintenance. One said they would not support such a program and one declined to answer.

The type of support respondents are willing to provide are:

- Release time for employees to participate – 10
- Donation of training aids (equipment, etc) – 10
- Pre-employment on the job training – 9
- Transportation to move students to sites – 6
- Accommodation at training site – 4
- Classroom facilities – 4
- Hiring an employee from the program
- Employment – on the job training

Appendix A: *Aviation Industry Survey Instrument*

Hello, my name is _____. I am calling on behalf of the Saskatchewan Aviation Sector Partnership, which is a committee led by the Saskatchewan Aviation Council. We are interested in obtaining information from you on the training and human resource issues in the aviation industry.

Your input will help identify current and future training and human resource needs in the industry. This will help the Saskatchewan Aviation Council to facilitate the development of training programs to meet industry needs. **Not all of the questions may pertain to you, but your time participating in our survey would be very much appreciated.**

The survey will take about 30 minutes and your answers will be kept strictly confidential. Would you be able to participate at this time?

If not, can we make an appointment to talk again? _____
(Please note that you can indicate that there is a deadline on the survey as the Saskatchewan Aviation Council wants to discuss the results at their next meeting.)

Section One: Company Information

1. What is your main aviation business area?

Note to interviewer: Please do not read categories. Check all that apply.

- ❑ Charter
- ❑ Scheduled
- ❑ Combination of charter and scheduled
- ❑ Seasonal charter
- ❑ Medivac
- ❑ Fire fighting
- ❑ Aerial applicator
- ❑ Flight training
- ❑ Aircraft maintenance and overhaul
- ❑ Other *(please specifying)*: _____

2. Are you a fixed wing or rotary operation?
   - ❑ Fixed wing
   - ❑ Rotary

3. Are you a corporate or government operation?
   - ❑ Corporate
   - ❑ Government

4. Is the majority of your flying done in Northern or Southern Saskatchewan?
(Note: the north/south divide is Prince Albert.)
- ❑ Northern
- ❑ Southern

3. How many people work in your company, both full and part-time, including yourself?
- ❑ Less than 10? How many? _____
- ❑ 10 or more? How many? _____

4. For the last completed fiscal year, what percent of your gross revenue (sales and other income) was generated in each of the following markets?

Within province	_____%
Canada-wide (rest of Canada)	_____%
International (outside of Canada)	_____%

5. How many aircraft are in your fleet? _____

6. What types of aircraft are they?

7. *If you are an operator*, what type of maintenance do you send out of province and what type do you have done in the province?
(Check all that apply.)

In Province	Out of Province
❑ Avionics	❑ Avionics
❑ Hydraulics	❑ Hydraulics
❑ Engine overhaul	❑ Engine overhaul
❑ Instrument overhaul	❑ Instrument overhaul
❑ Other *(specify)*	❑ Other *(specify)*
❑ Other *(specify)*	❑ Other *(specify)*

8. *If you are an AMO*, what type of maintenance service do you do and what do you have to send out of the province?

(Check all that apply.)

In Province	Out of Province
❑ Avionics	❑ Avionics
❑ Hydraulics	❑ Hydraulics
❑ Engine overhaul	❑ Engine overhaul
❑ Instrument overhaul	❑ Instrument overhaul
❑ Other *(specify)*	❑ Other *(specify)*
❑ Other *(specify)*	❑ Other *(specify)*

9. If there were trained personnel available, what services would you expand into?

Section Two: Employment Projections

10. Please indicate which of the following occupations your company currently employs. Of these categories, how many do you expect to employ in 5 years? Provide your best estimate. If you have people working half-time in your organization, please indicate that there is a ½ position. (*See the last page for descriptions if needed.)*

Employed by Company?	a) Currently employ	b) In 5 years
Flight Operations Manager		
Base Manager		
Pilots		
Flying instructors		
AMEs, apprentice AMEs, and other licensed or unlicensed technicians		
Flight Attendants		
Airline Sales Agents		
Ramp Attendants/ Fuelers		
Dispatchers		
Customer Service Agents		
Administrative & Accounting Related Clerks ie) records		
Other (*please specify)*		
Other *(please specify)*		

Section Three: Employee Profile

Please note: All of the following questions deal **only** with pilots and AMEs.

11. How many of your pilots/flying instructors are in the following age categories? *(Note to interviewer: if the respondent does not know the number ask him/her to estimate. Do not record percentages.)*

Up to 24	25-44	Over 45

12. How many of your AMEs are in the following age categories? *(Note to interviewer: if the respondent does not know the number ask him/her to estimate. Do not record percentages.)*

Up to 24	25-44	Over 45

13. What is the average annual salary of entry level and experienced AMEs and pilots/flying instructors in your organization?

Occupation	Entry Level Annual Salary	Experienced Annual Salary
Pilots/ flying instructors		
AMEs, apprentice AMEs, and other licensed or unlicensed technicians		

14. What other employee benefits do you provide? *(Interviewer: Do not read categories. Prompt if necessary)*

- ❑ None
- ❑ Medical/dental/disability/life insurance
- ❑ Bonuses/ incentive plan
- ❑ Retirement benefits
- ❑ Tuition assistance
- ❑ Profit sharing
- ❑ Sick leave
- ❑ On the job training
- ❑ Other *(please specify:*_____*)*
- ❑ Other *(please specify:*_____*)*
- ❑ Other *(please specify:*_____*)*

15. Within the next 5 years, will your new pilots and AMEs require a different level of formal education and training? (Formal education includes high school, post-secondary, and technical training.)

Pilots

- ❑ Yes
- ❑ No

If yes, in what way?	If no, why?

AMEs

- ❑ Yes
- ❑ No

If yes, in what way?	If no, why?

16. How many pilots/flying instructors and AMEs do you have in each of the following groups?

Group	Pilots	AMEs
Aboriginal (*This includes Status Indians, Non Status Indians, Métis, and Inuit*)		
Women		
Visible minorities *(Includes persons who, because of their race or color, are in a visible minority in Canada. This may include persons of African ancestry, Asian ancestry, Arabic ancestry, etc. This does not include persons of aboriginal ancestry)*		
Persons with disabilities		

17. Do you believe the representation from these groups will increase, decrease or stay the same over the next five years?

(Interviewer please circle one.)

Group	Pilots/Flying Instructors			AMEs		
Aboriginal	Increase	Decrease	Stay the same	Increase	Decrease	Stay the same
Women	Increase	Decrease	Stay the same	Increase	Decrease	Stay the same
Visible minorities	Increase	Decrease	Stay the same	Increase	Decrease	Stay the same
Persons with disabilities	Increase	Decrease	Stay the same	Increase	Decrease	Stay the same

Section Four: Recruitment and Retention

18. The following is a list of difficulties potential pilots and AMEs often face trying to find a job in the aviation industry. Please rate the items on the list, with 1 if you don't think it is a difficulty and 5 being you think it is a major difficulty. (For example, if it is very difficult to find a job because you need to have the proper training, rate this item as 5).

Difficulty Finding a Job in the Aviation Industry	Not at all → Rating → Major						
Need proper training	1	2	3	4	5	dk	na
Need aviation experience	1	2	3	4	5	dk	na
Must have a good work ethic/willing to work	1	2	3	4	5	dk	na
There is high competition for jobs	1	2	3	4	5	dk	na
Cost of training for the individual	1	2	3	4	5	dk	na

19. What other problems, if any, do potential pilots/flying instructors and AMEs face trying to find a job in the aviation industry?

Pilots/Flying Instructors	AMEs

20. The following is a list of difficulties employers may face trying to recruit pilots/flying instructors and AMEs. Please rate the items on the list, with 1 being not a difficulty and 5 being a major difficulty. (For example, if it is very difficult to find a job because you need to have the proper training, rate this item as 5).

Difficulty Finding Workers for the Aviation Industry	Rating					
	Not at all →					Major
It is hard to attract employees to remote locations	1	2	3	4	5	dk
It is difficult to offer competitive wages	1	2	3	4	5	dk
There is a shortage of trained labour	1	2	3	4	5	dk
Aviation is unknown as a career choice	1	2	3	4	5	dk
There is a shortage of experienced labour	1	2	3	4	5	dk

21. What other problems, if any, do employers face trying to find pilots/AMEs for the aviation industry?

Pilots/Flying Instructors	AMEs

19. In the last year, how many pilots/flying instructors and AMEs left your company:

Reason	How many pilots/flying instructors?	How many AMEs?
Left voluntarily		
Were terminated		
Were laid off		
Retired		
Other (specify)		

20. Do you consider turnover among pilots/flying instructors and AMEs in your organization to be a problem?

- ❑ Yes
- ❑ No

Why or why not?

21. What methods have you used to recruit pilots/flying instructors and AMEs? How effective have they been on a scale of 1 – 5, where 1=very ineffective and 5=very effective.

Methods for Pilots/Flying instructors	Rating					
	1	2	3	4	5	dk
	1	2	3	4	5	dk
	1	2	3	4	5	dk
Methods for AMEs	**Rating**					
	1	2	3	4	5	dk
	1	2	3	4	5	dk
	1	2	3	4	5	dk

22. What are the three most common reasons pilots/flying instructors and AMEs give you when they leave your organization?
(Interviewer: Do not read list except to prompt if needed. Check off the three that closest apply.) For example, if someone says "went back to school" check "going back to school" or "high stress" check "job is too stressful"

- ❑ Better opportunities for advancement/ for a tier 1 carrier
- ❑ Better wages elsewhere
- ❑ Better benefits
- ❑ Going back to school
- ❑ Retirements
- ❑ Hours are too long
- ❑ Lack of training
- ❑ Job is too stressful
- ❑ Physical demands of the job are too great
- ❑ Poor work environment (dust, noise)
- ❑ Poor communication between management and employees
- ❑ Having to work shifts and weekends
- ❑ Leaving for personal reasons
- ❑ Away from home a lot
- ❑ Lower taxes elsewhere
- ❑ Other (*specify*): _____
- ❑ Other (*specify*): _____
- ❑ Other (*specify*): _____

Section Five: Skill Requirements and Training

23. In addition to the requirements for the issuance of a Transport Canada license, what skills do entry-level pilots, engineers, technicians and others require? What skills do they lack?
(If they do not mention any of the following skills, please prompt. Industry knowledge, reading text, document use, writing, mathematics, oral communication, problem solving, decision making, planning and organizing, computer skills.)

Occupation	Industry Specific Skill Needed	Skills Lacking
Pilot		
AMEs		

24. What do you see as the best way to provide initial and recurrent training to pilots/flying instructors and AMEs?
(Interviewer: please read options below and check one in each column.)

Pilots/Flying Instructors	AMEs
❑ External training	❑ External training
❑ In-house training	❑ In-house training
❑ Combination of both	❑ Combination of both

25. Initial and recurrent training is a requirement in aviation. Please identify the three main difficulties in achieving your training objectives.
(Interviewer: Do not read list except to provide examples. Check the three closest identified.)

- ❑ Lack of time
- ❑ Lack of resources
- ❑ Lack of training in the province
- ❑ Lacking awareness about training options/programs
- ❑ Logistics of scheduling training sessions
- ❑ Availability/capability of in-house expertise
- ❑ High percentage of seasonal workers
- ❑ Union relations
- ❑ Cost of tuition and books
- ❑ Cost to employee of living expenses while not working
- ❑ Distance to training institutions
- ❑ Cannot afford to take people off the job for training
- ❑ Other *(specify):* _____
- ❑ Other *(specify):* _____
- ❑ Other *(specify):* _____

Section Six: Industry Trends

26. Are there any new occupations emerging or dramatic changes occurring to existing occupations in the industry? Please identify the cause of this.
(Interviewer: please check either emerging or changing.)

Occupation	Emerging	Changing	Cause

27. What impact will technology have on your organization, employees, and/or labour market requirements in the next 5 years? For example meteorology, new aircraft technology, communications technology, GPS flight management.

28. How do you expect to cope with these changes?

29. Will the skills of your employees need to become more specialized, more generalized or will they remain the same over the next 5 years?

- ❑ More specialized
- ❑ More generalized
- ❑ Remain the same

Why?

30. How is globalization affecting your business?

31. Are there other factors that haven't been mentioned yet that affect your company, the industry, employees or the labour market that you would like to comment on?

Section Seven: Training Options - Awareness and Assessment

32. Would your company be prepared to contribute resources to an industry directed commercial pilot and AME training program that would bring students to a knowledge and competency level that would require little more than company indoctrination training before employment?
- ❑ Yes
- ❑ No

If yes, please specify your contribution:
- ❑ Release time for employees to participate in training programs
- ❑ Transportation (seats/aircraft) to move students to training sites
- ❑ Pre-employment on the job training
- ❑ Accommodation at training sites
- ❑ Training aids ie) surplus equipment, manuals. Loan of aircraft
- ❑ Classroom facilities
- ❑ Other (specify) _____

Thank you! The information you have provided will remain confidential. Your answers will help the Saskatchewan Aviation Sector Partnership decide the best course of action to take to address human resource and training issues for in this industry.

Can I please get the following information?

Contact Name: _____

Business Name: _____

Phone Number: _____

Fax Number: _____

Email: _____

Street Address: _____

City/Town/Box #: _____

Postal Code: _____

33. Would you like more information about the Saskatchewan Aviation Sector Partnership?

- ❑ Yes
- ❑ No

DESCRIPTIONS OF OCCUPATIONS

Industry Specific Occupations

0713 Transportation Managers: Flight Operations Manager

- Plan, organize, direct, and control the operations of the company under the direction of a general manager or other senior manager. Set operations policies and standards, including determination of safety procedures. Over see dispatch of aircraft. Control company or departmental budget. Monitor performance. Recruit personnel.

0721 Base Managers

- Plan, organize, direct and control the operations of facilities. Oversee leasing and maintenance of facility and equipment. Develops market strategies. Plans and manages operations and maintenance budgets. Recruit personnel and oversee training.

2244 Aircraft Instrument, Electrical and Avionics Mechanics, Technicians and Inspectors

- Repair, overhaul, install and test aircraft instruments, electrical systems, and equipment.

2271 Air Pilots, Flight Engineers and Flying Instructors

- Fly fixed wing aircraft of helicopters to transport passengers and freight.
- Provide services such as search and rescue, aerial surveying or spraying.
- Monitor operation of engines, fuel consumption and functioning of aircraft systems
- Instruct student pilots in procedures and techniques of flying.

2272 Air Traffic Control Occupations

- Control flow of air traffic within assigned airspace using radar monitors, radio and other communication equipment.
- Issue aircraft takeoff and landing, relay meteorological, navigational and other information

6432 Pursers and Flight Attendants

- Greet passengers, explain safety procedures, attend to safety of passengers, serve food and beverages.
- Pursers and passenger service directors co-ordinate the activities of flight attendants, provide service to passengers.

6433 Airline Sales Agents

- Prepare and issue tickets, assign seats, prepare boarding passes, check baggage, attend boarding gate, assist pre-boarding passengers.
- Trace baggage, weigh cargo, compute freight costs, calculate charges for services and insurance

7265 Welders

- Operate welding equipment to weld ferrous and non-ferrous metals.

7315 Aircraft Mechanics and Aircraft Inspectors

- Troubleshoot and repair aircraft structural, mechanical and hydraulic systems

7437 Air Transport Ramp Attendants and Fuelers

- Operate ramp-servicing vehicles and equipment, handle cargo and passenger baggage and perform other ground support duties at airports.

9481 Aircraft Assemblers and Aircraft Assembly Inspectors

- Fit and install pre-fabricated parts to manufacture fixed wing or rotary wing aircraft or aircraft sub-assemblies.
- Inspectors inspect aircraft assemblies for adherence to engineering specifications.

Other Occupations

1221 Administrative Officers

- Includes office administrators and managers
- Oversee and co-ordinate office administrative procedures and needs

1431 Accounting and Related Clerks

- Calculate, prepare and issue bills, invoices, account statements and other financial statements

Appendix B: Aircraft Maintenance Survey Instrument

Hello, my name is _____. I am calling on behalf of the Saskatchewan Aviation Sector Partnership, which is a committee led by the Saskatchewan Aviation Council.

The Saskatchewan Aviation Council has taken the lead in examining the need to have an AME Training course offered within Saskatchewan and are exploring what trade or licensing areas should be offered. To standardize the vocabulary used today - "Approved Training Organization (ATO) training" will mean the training required to be eligible for AME licensing. There may be ways to obtain an AME license that does not involve training from a Transport Canada approved ATO and this should be explored as well.

In addition, a person can be an ATO trained technician who is qualified in his trade to work on specified aircraft types without holding an AME license. Only the holder of an appropriately rated AME license can release an aircraft for flight following maintenance or repair.

The survey will take about 30 minutes and your answers will be kept strictly confidential. Would you be able to participate at this time?

If not, can we make an appointment to talk again? _____

1. These questions are to determine the size of the maintenance work force which has or requires basic training from a Transport Canada (TC) Approved Training Organization (ATO):

   a. How many licensed AMEs do you currently employ? _____

   b. How many apprentice AMEs do you currently employ? _____

   c. Of the apprentice AMEs you employ, how many have attended an Approved Training Course? _____

2. There are a number of trade areas that the aircraft industry recognizes. Canadian Aircraft Maintenance Council, for example, has identified approximately 13 different trade areas. We wish to set up a training program to meet the greatest demand and are asking the following questions to determine whether CAMC certification would be acceptable to industry.

   If available, would you hire a CAMC certified technician: (ie: Aviation Welding Technician, Aviation Structural Repair Technician, etc.)

   a. in lieu of an AME? Yes No

   b. In addition to an AME? Yes No

3. The next series of questions are to determine the existing shortfalls (if any) of Approved Training Organization trained personnel in the province. This does not address any growth but only identifies if there is a requirement for more Approved Training Organization trained people to sustain existing business volumes. We must also know the trade areas required.

   a. In order to sustain your existing business levels how many personnel trained at an Approved Training Organization does your organization require?

   _____

   b. In what areas (licensing categories, etc.) are the shortfalls?

4. It is important to know if the shortage (if any) exists due to not enough people in the occupation or if there are people simply looking for a change of employment within the industry.

   a. Bearing in mind that there will be retirements and other turnover of AME staff, how many **licensed** AMEs do you anticipate hiring: immediately, within the next 1-2 years, 3-4 years?

Hiring requirements: Licensed AMEs		
Immediately	**Within the next 1 – 2 years**	**Within the next 3 - 4 years**

   b. Bearing in mind that there will be retirements and other turnover of AME staff, how many **apprentice** AMEs do you anticipate hiring: immediately, within the next 1-2 years, 3-4 years?

Hiring requirements: Licensed AMEs		
Immediately	**Within the next 1 – 2 years**	**Within the next 3 - 4 years**

5. It is necessary to determine the projected growth of the aircraft maintenance industry in Saskatchewan. The intent of these questions is to determine if the demand for Approved Training Organization trained and/or licensed personnel restricts a business's size.

   a. Does the current shortage of AMEs/ apprentice AMEs/ and technicians affect your current business size ?

      Yes No

   b. What trade or licensing areas would you require if you were to grow or expand your business?

   c. If sufficient AMEs/apprentice AMEs were available, would you expand your present aviation business?

      Yes No

   d. By how much would you expand? (Please give a percentage).

      _____

6. Another area that must be considered is the volume of business that is currently leaving the province due to a lack of AMOs or a shortage of skilled/licensed personnel. The following questions are designed to determine if you are sending aircraft maintenance or aircraft repair and overhaul work to out of province AMOs. The idea is that if existing or prospective AMO operators wished to expand into a market segment, is there a sufficient source of trained personnel to do the work.

   a. In estimated dollar figures, how much of the maintenance/overhaul of your company's aircraft, or the aircraft you maintain for other companies under contract, is subcontracted or completed out of Province: **(Be sure they include such things as engine/propeller overhaul).**

   - ❑ 10 - 49K,
   - ❑ 50 - 99K,
   - ❑ 100 - 199K,
   - ❑ 200 - 299K,
   - ❑ 300 - 499K,
   - ❑ 500 – 1 million

   b. If there was an Approved Training Organization in the Province, would other companies move here to take advantage of this source of trained personnel?

      Yes No

7. These questions are to determine where people are obtaining their Approved Training Organization training and where employers (AMOs) are recruiting their Approved Training Organization trained/ licensed people:

   a. How many of the AMEs/apprentice AMEs that you intend to hire will likely be from outside the Province?

      _____

   b. Will you give preference to hiring persons who have attended an approved course?

      Yes No

   c. Will personnel who have been in the province for a number of years be more likely to stay here?

      Yes No

8. The next few questions seek to determine the numbers of people leaving the industry or the province. It is important to distinguish between people simply rotating around from one AMO to another and those that actually leave the industry (retirement, dissatisfaction with environment etc.).

   a. What has been the recent (last five years) employment attrition pattern within your organization regardless of whether the individuals leaving were replaced or not?

   b. Of those that left, were all replaced?

      Yes No

   c. What were the trade or license areas of those that left?

   d. Did those who left your organization leave the industry?

      Yes No

   e. If they went to another AMO, did they stay in province?

      Yes No

9. Part of the study is to determine the scope of licensed/accredited personnel shortfalls within the industry and to determine whether they are primarily local, national, international. We are seeking the opinions of the Saskatchewan AMO operators.

   a. Are you of the opinion that Canada, in particular Saskatchewan, is presently experiencing a shortage of AMEs/ apprentice AMEs/ CAMC technicians?

      Yes No

   b. How severe do you think the shortage is?

   c. Do you think there will there be a shortage in 5 years?

      Yes No

      In 10 years?

      Yes No

10. Would your company be prepared to support an industry directed AME training program that would bring students to a knowledge and competency level that would better prepare them for employment in the aviation maintenance industry?

Yes No

If yes, please specify what type of support you would provide:

- ❑ Release time for employees to participate in training programs
- ❑ Transportation (seats/aircraft) to move students to training sites
- ❑ Pre-employment on the job training
- ❑ Accommodation at training sites
- ❑ Training aids ie) surplus equipment, manuals, loan of aircraft
- ❑ Classroom facilities
- ❑ Other (specify) _____

Can I please get the following information?

Contact Name: _____

Business Name: _____

Phone Number: _____

Fax Number: _____

Email: _____

Street Address: _____

City/Town/Box #: _____

Postal Code _____